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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,910	09/28/2005	Marco Bergemann	278178US0PCT	4573
22850 7590 06/11/2009 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER PO, MING CHEUNG	
			ART UNIT 1797	PAPER NUMBER
			NOTIFICATION DATE 06/11/2009	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/550,910	Applicant(s) BERGEMANN ET AL.	
	Examiner MING CHEUNG PO	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 7-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This is the response to application 10/550910 filed on 3/13/2009.
2. Claims 1- 3, 7-22 are pending and have been fully considered.
3. The 101 and 112, 1st paragraph rejections of claims 17, 28, and 20 have been withdrawn in light of applicant's amendment.

Election/Restrictions

4. Newly submitted claim 17 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claim 17 is directed to a printing ink instead of a fuel composition.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 17 has been withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 7- 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over KUMMER (U.S. 4,832,702) in view of KAISER (US 3,700,595) and evidenced by

the present application.

Regarding claims 1 and 17, KUMMER teaches fuel and lubricant compositions that contain certain polyisobutylamines.

The present application teaches in lines 14 - 24 of page 20 that a known PIBA formulation or "old PIBA" has a **pour point of -30°C** which is less than -27°C.

KUMMER does not seem to explicitly state that the solvent may be mixtures of S1) at least one n- or iso—C₁₀-C₁₄ paraffin, S2) at least one C₁₀-C₁₄ naphthene; and wherein S1 and S2 are present in a mixing ratio of from 10:90 to 90:10.

However, KUMMER does teach in lines 26 – 39 of column 4 that particularly suitable solvents are aliphatic, cycloaliphatic and aromatic hydrocarbons having a low sulfur content.

It would be obvious to one of ordinary skill in the art to use a mixture of at least one paraffin and one naphthene as the solvent in the compositions that KUMMER teaches.

The motivation to do so can be found in lines 35 – 50 of column 2 of KAISER.

KAISER teaches that it would be beneficial to use a mixture of paraffins and naphthenes such as one with C₉-C₂₁ saturated paraffins and C₇-C₁₈ saturated naphthenic hydrocarbons such as white oil, rather than pure compounds because the mixtures have lower pour points and a better controlled evaporation rate. The mixtures are also cheaper than pure compounds.

It would further be obvious to one of ordinary skill in the art to use at least a mixture of S1) and S2) present in a mixing ratio of from 10:90 to 90:10 since it has been

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held that where the general conditions are known, optimization or workable ranges involve only routine skill in the art.

KUMMER teaches a compound with general formula I



where R₁ is a polybutyl or polyisobutyl radical of 20 to 400 carbon atoms derived from isobutene and up to 20% by weight of n-butene and R₂ and R₃ are each identical or different and are each hydrogen, C₁-C₁₀ alkyl, phenyl, naphthyl, C₁-C₁₀-hydroxyalkyl or polybutyl or polyisobutyl, each 20 to 400 carbon atoms, a polyaminoalkylene radical of the general formula III.

Regarding claims 3 and 15, KUMMER does not seem to explicitly state the properties of the solvent.

However, it would be reasonable to expect that mixing the paraffinic solvent and the naphthenic solvent that KAISER teaches would have these properties.

In the alternative, it would be obvious to one of ordinary skill in the art to use a solvent with those properties since it has been held that where the general conditions are known, optimization or workable ranges involve only routine skill in the art.

Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Regarding claim 7 - 10, KUMMER teaches in reference claim 2 that the polybutyl or **polyisobutyl** radical of 32 to 200 carbon atoms is derived from **isobutene** and up to 20% by weight of **n-butene**. 32 to 200 carbon atoms translate to a range of at least 384

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to 2400 mw which is from about 200 to 10,000. KUMMER specifically state in lines 33-34 of column 3 that the molecular weight of the polyisobutene may be from 300 to 2000.

Regarding claim 11, KUMMER teaches in lines 1 – 6 that a preferred embodiment would be one in which the polyisobutyl radical is derived from isobutene and up to 20 weight % of n-butene **(at least 85% by weight of isobutene units)** and R_2 and R_3 of formula I may be hydrogen **(polyisobuteneamine)**.

Regarding claim 12, KUMMER teaches in lines 4 – 20 of column 6 that a polybutene **(polyalkene)** is aminated with 1l of ammonia **(amine)**. Ammonia has the general formula HNR^1R^2 wherein R^1 and R^2 are both H.

Regarding claims 13, KUMMER teaches in lines 16 – 25 of column 4 that the compound of general formula I are prepared by hydroformylation of a polybutene or **polyisobutene** with a rhodium or cobalt catalyst in the presence of CO and H₂ and then subjecting the oxo product to a Mannich reaction or amination under hydrogenating conditions.

Regarding claim 14, KUMMER teaches that is is advantageous to use a suitable inert solvent in order to reduce the viscosity of the reaction mixture.

Regarding claim 15, KUMMER teaches in TABLE 1 of several conversions of PIBA that is more than 63 %, such as example 1 with a conversion of 81 %.

Regarding claims 16, KUMMER teaches in lines 35 – 43 of column 3 that in a fuel composition, the polybutyl or polyisobutylamine may be present, in particular 100 – 400 mg/kg of fuel.

Regarding claim 18, KUMMER teaches that the fuel or lubricant composition of

the reference invention prevent the formation of deposits in the intake system of internal combustion engines in lines 25 – 38 of column 1.

Regarding claim 21, KUMMER teaches in EXAMPLE 1, 500 g of polybutene is mixed with 300 g of dodecane and 2.8 g of cobalt-octacarbonyl undergoes hydroformylated in an autoclave under a 1:1 CO/H₂ mixture. The resulting oxo product is then aminated with 1l of ammonia.

Regarding claim 22, KUMMER teaches in EXAMPLE 1, the dodecane is the solvent is **37.5% of the total weight of the solution.**

Response to Arguments

7. Applicant's arguments filed 3/13/2009 have been fully considered but they are not persuasive. Applicant argues that KUMMER, TANAKA, KNOVEL, and ROPER does not disclose or suggest, alone or in combination a formulation that address the low temperature performance, and storage stability improvements by using the solvents in the present invention. However, KUMMER does teach the use of an inert solvent and the present application teaches the use of a known PIBA formulation with a pour point of less than -30C. It would be obvious to one of ordinary skill in the art to produce a PIBA formulation with the PIBA that KUMMER teaches in a solvent that would create a formulation of less than -30C. Applicant further argues that the amended solvent claimed is not disclosed or suggested by KUMMER, TANAKA, KNOVEL, and ROPER. However, KAISER teaches the benefits of combining a paraffinic solvent with a naphthene solvent. It would be obvious to one of ordinary skill in the art to combine the solvent that KAISER teaches with the polyalkene amine that KUMMER teaches.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MING CHEUNG PO whose telephone number is (571)270-5552. The examiner can normally be reached on 9:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571)272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ming Cheung Po
Patent Examiner

/Cephia D. Toomer/

Primary Examiner, Art Unit 1797